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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,728	12/12/2003	Neil John Graham	51,179	9728

7590
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02/21/2007

EXAMINER

WERNER, JONATHAN S

ART UNIT

PAPER NUMBER

3732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/733,728

Applicant(s)

GRAHAM, NEIL JOHN

Examiner

Jonathan Werner

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2006 and 08 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/8/06
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. This action is in response to Applicant's amendment received on 8/31/06.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/31/06 has been entered.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 12/8/06 is noted. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. However, Examiner notes that the sole reference listed on Applicant's IDS was already listed by the Examiner on the Notice of References Cited (PTO-892) on 11/16/05.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1, 7, 13, 19 and 25, Applicant claims an arch bar that is "attached to a fixed orthodontic appliance by piggybacking on the labial side of an installed orthodontic appliance." However, it is not clear how the arch bar can be fixed to said appliance by piggybacking on an installed orthodontic appliance since it is not disclosed whether the two appliances (i.e. the "fixed" and "installed") are distinct – i.e. how piggybacking the arch bar to an installed appliance can attach it to a separate fixed appliance. Additionally, Examiner does not understand how the longitudinal body of the wire can become curved if placed on the installed orthodontic appliance as opposed to the fixed appliance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Kesling (US 4,676,747). Kesling discloses using an accessory arch bar for placing orthodontic force upon the teeth consisting of forming a longitudinal arch bar into a pre-determined shape (Figure 2/Column 3, Lines 51-53); placing the bar adjacent to the cheek side of an arch

wire of an orthodontic appliance (Figure 3); and ligating the bar to an orthodontic appliance (col 2, lines 3-8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 5, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool (US 4,424,033). In re claims 1 and 3, Wool shows an arch bar comprising a metal wire with a longitudinal body having opposing longitudinal ends (Figure 1) and a cross-sectional diameter (Figure 3); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (i.e. 38; Figure 7); a straight longitudinal body which becomes curved when placed on the orthodontic appliance (Figure 7); and tying means (i.e. column 4, lines 7-11) for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature (i.e. 44) is used to attach the arch bar to an orthodontic bracket (Figure 7). Wool does not explicitly disclose that the arch bar has a cross-sectional diameter in the range of 0.025 inches to 0.60 inches. However, Wool does disclose that the arch bar can have a diameter of 0.022 inches (col 6, ln 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to make the cross sectional diameter in the range of 0.025 to 0.60 inches since it has been held that a *prima facie* case of obviousness

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exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). As to claim 5, Wool fails to disclose the specific cross-sectional diameter of the arch bar is 0.027 inches. Although, Wool does disclose a cross-sectional diameter of the arch bar to be about 0.022 inches (col 6, ln 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cross-sectional diameter 0.027 inches since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In re claim 7, in addition to what was described above, Wool also shows an arch bar attached to a fixed orthodontic appliance by piggybacking on the labial side of the installed appliance (i.e. 38; Figure 7), comprising a metal wire with a longitudinal body having opposing longitudinal ends (Figure 1), a cross-sectional diameter (Figure 3), and the longitudinal body is curved on a flat plane (Figure 1); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figure 7); and tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (column 4, lines 9-11). As to claim 11, Wool fails to disclose the specific cross-sectional diameter of the arch bar is 0.027 inches; though Wool does disclose a cross-sectional diameter of the arch bar to be 0.022 inches (col 6, ln 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cross-sectional diameter 0.027 inches

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since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Moss (3,315,359). Wool discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are formed at a right angle to the bar's long axis and directed towards the teeth. Moss, however, teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, In 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form right angles in the end sections of the arch bar in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss. As to claim 8, Wool discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are formed at a right angle to the bar's long axis and directed towards the teeth. Moss, however, teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, In 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form right angles in the end sections of the arch bar in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.

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8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of White (US 6,431,861). Wool discloses an arch bar as previously described, but fails to disclose the bar is comprised of stainless steel. White, however, teaches an arch bar that is comprised stainless steel (col 4, ln 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to make the arch bar out of stainless steel in order to ensure the bar can manipulated to lie within a flat plane or can substantially follow a continuous curved shape as taught by White.

9. Claims 6, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Kelly (US 6,095,809). In re claim 6, Wool discloses a dental arch bar as previously described, but is silent as to the composition of the bar being Ti beta 3. However, Kelly teaches an orthodontic arch bar that is comprised of beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to make the arch bar comprise of Ti beta 3 in order provide a sufficient stiffness and flexibility for the bar to operate as taught by Kelly. In re claims 10 and 12, Wool discloses a dental arch bar as previously described, but is silent as to the composition of the bar. Kelly, however, teaches an orthodontic arch bar that is comprised of metal compositions, including beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to make the arch bar comprise of metal compositions (i.e. Ti beta 3) in order provide a sufficient stiffness for the bar to operate as taught by Kelly.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Miura (5,017,133). In re claim 9, Wool discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are looped towards the teeth when placed on an orthodontic appliance. Miura, however, teaches bending the ends of an orthodontic arch wire into loops (Figures 2-3) wherein the loop can encircle an orthodontic wire or bracket hook. Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form loops in the end sections of the arch bar in order to secure said end sections and prevent the arch bar from slipping through the brackets as taught by Miura.

11. Claims 13, 16-17, 19, 21-23, 25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (6,431,861). In re claim 13, White discloses an arch bar attached to a fixed orthodontic appliance (Figure 3) comprising a metal wire with a longitudinal body having opposing ends (Figure 1-2); a cross sectional diameter that can be 0.022 inches (col 6, ln 2-3); and a longitudinal axis (Figure 1). White, however, fails to explicitly disclose that the arch bar has a cross-sectional diameter in the range of 0.025 inches to 0.60 inches. However, because White does disclose that the arch bar can have a diameter of 0.022 inches, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to make the cross sectional diameter of said arch bar in the range of 0.025 to 0.60 inches since it has been held that a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not

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overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). It should also be noted that applicant is claiming an article of manufacture and not the process of forming/making the device, accordingly, the manner in which the device is formed, i.e. forming the desired dental arch shape "with" a flat occlusal plane, is given little weight. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). In re claims 16, 22 and 28, White discloses the composition of the dental arch bar is stainless steel (col 1, ln 38). In re claims 19 and 25, White discloses the arch bar as previously described, as well as shows the wire is curved either upwards or downwards away from the flat plane in the direction that the occlusal plane of the teeth is to be moved (col 5, ln 54-59); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figures 2-3); and tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (col 7, ln 10-11). In re claims 21 and 27, White discloses the composition of the arch bar is comprised of metal compositions (col 3, ln 50-54). As to claims 17, 23 and 29, White discloses an arch bar as previously described but fails to disclose the specific cross-sectional diameter of the arch bar is 0.027 inches, though White does disclose a cross-sectional diameter of the arch bar to be between about 0.012 inches and 0.022 inches (col 3, ln 47-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cross-sectional diameter 0.027 inches since it has

been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

12. Claims 14, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Moss. In re claims 14, 20 and 26, White discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are formed at a right angle to the bar's long axis and directed towards the teeth. Moss, however, teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, ln 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form right angles in the end sections of the arch bar in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.

13. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Miura. In re claim 15, White discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are looped towards the teeth when placed on an orthodontic appliance. Miura, however, teaches bending the ends of an orthodontic arch wire into loops (Figures 2-3) wherein the loop can encircle an orthodontic wire or bracket hook. Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form loops in the end sections of the arch bar in order to secure said end sections and prevent the arch bar from slipping through the brackets as taught by Miura.

14. Claims 18, 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Kelly. In re claims 18, 24 and 30, White discloses a dental arch bar as previously described, but is silent as to the composition of the bar being Ti beta 3. However, Kelly teaches an orthodontic arch bar that is comprised of beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to make the arch bar comprise of Ti beta 3 in order provide a sufficient stiffness and flexibility for the bar to properly operate as taught by Kelly.

Response to Arguments

15. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection as described in detail above.

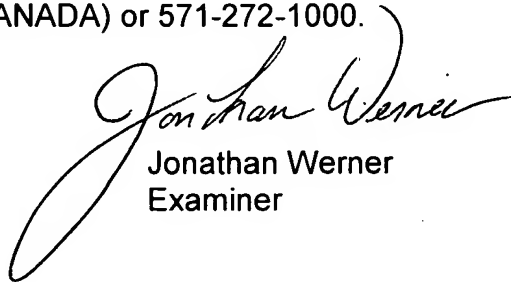
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Werner whose telephone number is (571) 272-2767. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Jonathan Werner
Examiner

2/12/07



MELBA N. BUMGARNER
PRIMARY EXAMINER